

ORIGINAL ARTICLE

ACTUAL CONDITIONS OF POSTOPERATIVE DYSCHEZIA RECOGNIZED BY RECTAL CANCER PATIENTS AND SELF-CARE

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Abstract The purpose of this study is to reveal the actual conditions of dyschezia as recognized by postoperative rectal cancer patients and their self-care, as well as the subjective QOL (Schedule for the Evaluation of Individual Quality of Life-Direct Weighting: SEIQoL-DW), and to obtain suggestions for the nursing intervention for improving the self-care of dyschezia and QOL. The subjects were 88 patients (age: 62.2 ± 9.3 years), consisting of 33 and 55 patients that received intersphincteric resection (ISR) and low anterior resection (LAR), respectively. The mean of the SEIQoL-DW index was 66.7 ± 15.3 for ISR and 63.8 ± 14.8 for LAR, showing no significant difference. The dyschezia was grouped into seven categories such as [frequent defecation], [irregular number of defecations], [defecation on oral drug administration], [frequent nocturnal defecation], [fecal incontinence], and [anal pain]. The proportions of [irregular number of defecations], [frequent nocturnal defecation], and [fecal incontinence] were significantly higher for ISR than LAR. The self-care of dyschezia can be summarized into eleven categories such as [washing anus], [applying diapers and pads], [controlling dietary intake], and [controlling defecation]. In conclusion, it is important to understand in detail the fecal control, local anal care, food content, and intake method as nursing interventions using a checklist, and to instruct the patients individually in cooperation with physicians and physical therapists.

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Key words: Rectal cancer; ISR; LAR; dyschezia; self-care.

原 著

直腸がん患者が認識する術後排便障害とセルフケアの実態

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抄録 本研究は、直腸がん手術後の患者が認識する排便障害とセルフケアの実態、主観的 QOL (SEIQoL-DW) を明らかにし、排便障害に対するセルフケアと QOL 向上のための看護介入への示唆を得ることを目的とした。対象者は88名 (62.2 ± 9.3 歳)、intersphincteric resection (ISR) が33名、low anterior resection (LAR) が55名であった。SEIQoL-DW のindex の平均は ISR が 66.7 ± 15.3 、LAR が 63.8 ± 14.8 で有意差はなかった。排便障害は、[排便回数が多い][排便回数が定まらない][薬の内服で排便がある][夜間の排便が多い][便失禁][肛門部痛]などの7つにまとめられ、[排便回数が定まらない][夜間の排便が多い][便失禁]は ISR の割合が有意に高かった。排便障害に対するセルフケアは、[肛門部を洗浄する][オムツやパットをあてる][食事量をコントロールする][排便をコントロールする]などの11にまとめられた。看護介入として、排便のコントロール、肛門部の局所ケア、食事の内容や摂取方法をチェックリストで詳細に把握し、医師・理学療法士と協働した個別の指導が重要であると考えた。

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Introduction

Colorectal cancers have been increasing with the changes in dietary habits centered on high-protein high-fat diets. Furthermore, the changes in the composition of enteric bile acids and the bacterial flora, which result from the intake of low-fiber food, are believed to facilitate the development of colorectal cancers. The number of colorectal cancer patients has been increasing year by year and, according to Journal of health and Welfare Statistics Association 2007¹⁾, the number of deaths from colorectal cancer reached 40,000, with the mortality for men ranked third after lung cancer and gastric cancer, and that for women ranked first, overtaking gastric cancer. Because the mortality of colorectal cancer has shown a gradual increase since 1996 whilst colon cancer has shown a decreasing tendency, it is supposed that the mortality of rectal cancer patients has been increasing¹⁾. In the case of rectal cancer patients, construction of temporary or perpetual stoma is required depending on the site and stage of tumor, but the construction tends to affect the patient's body image and be accompanied by psychological pain.

The first line therapy for rectal cancer is surgical therapy. Procedures such as anal sphincter-sparing surgery and autonomic nerve-sparing surgery, which aim at both a complete cure from cancer and conservation of anal function, have been adopted and low anterior resection (LAR) has been actively performed²⁾. LAR is a procedure in which anterior resection by abdominal approach is combined with the anal approach, and the rectum is anastomosed below the peritoneal reflection. Although abdominoperineal resection has traditionally been indicated for rectal cancers that occur in the vicinity of the anal canal, these cancers have recently been subjected to a surgery of combined resection of the inner anal sphincter

(intersphincteric resection: ISR)³⁻⁶⁾. However, with the expansion of the indication of anus-preserving operations, reports on various dyschezia and decreased QOL by postoperative dyschezia have been published.⁷⁻⁹⁾ A study evaluating the therapy on the basis of the actual condition of dyschezia after rectal cancer surgery has also been reported¹⁰⁾. On the other hand, nursing places emphasis on the study of patients with stoma, and only four studies have paid special attention to dyschezia of patients who underwent anus-preserving operations¹¹⁻¹⁴⁾.

Excretion is a basic desire and, in particular, defecation is correlated closely with shame and self-respect. Because frequent defecation, fecal incontinence, and underwear stain due to mucus and feces emerge after anus-preserving operations, patients sometimes feel unsatisfied with their own situation¹⁵⁾. It has been predicted that the development of somatic symptoms will cause concern about the relapse and metastasis of cancer and influence the patients' feelings of self-esteem. One study of the QOL of colorectal cancer patients suggests that postoperative dyschezia has a harmful effect on self-respect and dignity, while another study in which the change in the feelings of self-esteem of postoperative rectal cancer patients was examined with respect to the postoperative period suggests that patients with dyschezia suffer feelings of decreased self-esteem even two years after surgery^{14, 15)}. Studies of dyschezia have been found occasionally accompanying the progress of anus-preserving operations, but the recognition of individual dyschezia, the situation of self-care, and the measures for nursing intervention in dyschezia have not been clarified.

Elucidation of the actual conditions of dyschezia and the self-care of patients who have undergone anus-preserving operations as well as clarification of the difference in the actual conditions between LAR and ISR procedures

would lead to the proposal of skills for elevating the self-care capacity specific to dyschezia and, finally, to the improvement of self-care and the QOL of each patient.

Purpose

To illustrate the actual conditions of dyschezia recognized by postoperative rectal cancer patients and their self-care; to clarify the difference in dyschezia and self-care between the procedures (ISR and LAR) ; and to obtain suggestions for the improvement of self-care and QOL of postoperative patients.

Definition of terms

- (1) "Self-care" refers to taking care of oneself by oneself for the purpose of maintaining one's own healthy functions, sustained personal growth, and peace.
- (2) "Drugs" refer to the drugs for supplementing the postoperative defecation function, and include antifatulents, Chinese medical preparations, laxatives, antidiarrheals, and hemorrhoid medicine in this study.
- (3) "Supplements" refer to dietary supplements that patients take by themselves for health maintenance.
- (4) "QOL" is regarded as subjective QOL and is considered mainly from the point of consciousness of how individuals feel about their lives cognitively.

SEIQoL (Schedule for the Evaluation of Individual Quality of Life) was adopted for the measurement of QOL in this study. SEIQoL regards QOL as "the patient's awareness of the influence of disease and treatment, and the reflection of the discrepancy between the patient's hope and reality of their physical and mental health, degree of independence, and social life." In addition, it is assumed that QOL is not an attribution for patients but rather a subjective

construct that forms under the relationship between disease and self or between patient and care; therefore, QOL changes constantly with the relationship and any low QOL can be improved¹⁶⁾.

Methods

1. Subjects

The subjects were 88 general hospital outpatients who received ISR and LAR for rectal cancer, agreed with the aim of this study, and provided their cooperation in this study.

2. Methods for data sampling

Subjects were interviewed one by one according to the interview guide. The time for each interview was 40 to 88 min. (mean: 58 min.) and attention was paid to fatigue.

The survey included the basic attributes of gender, age, employment status, family structure, surgery date, surgery procedure, site of tumor, and stage, which were collected from the medical charts. The defecation status recognized by patients themselves and the specific contents of self-care were recorded, and SEIQoL-DW was measured as the QOL.

SEIQoL, which was developed by the research group of Ciarran O'Boyle and others in the Royal College of Surgeons in Ireland, is based on a narrative approach. The characteristics of this method are that patients themselves categorize the areas of life for determining QOL through conversation with the interviewer, and five areas of quality of life (cues) are named and constructed. The levels of satisfaction in each cue are assessed using a visual analog scale (VAS) by the patients themselves and, subsequently, the levels of the five cues are weighed directly using a special disk. It is believed that, when SEIQoL is adopted, these features enable patients to alter the cues by themselves with the course of

disease and detect changes in the cue caused by nursing intervention. SEIQoL-DW is a simplified method of SEIQoL.

Other information obtained from the subjects was recorded in a field notebook. We sometimes intervened in cases when the patients were distressed by dyschezia during the interview and wanted to manage it, in cooperation with physicians and outpatient nurses.

3. Analytical methods

1) Actual conditions of dyschezia and self-care

The defecation data obtained by interview were classified with respect to the semantic content and were then encoded. Similar codes were grouped, subcategorized, and categorized to extract the items of dyschezia. Similarly, the self-care conditions, which were classified with respect to the semantic content then encoded, were subcategorized and categorized.

2) Comparison of dyschezia, self-care, and QOL with respect to the ISR and LAR procedures

The data for each item of dyschezia extracted by content analysis were reviewed and compared using the χ^2 -test with respect to the ISR and LAR procedures. Because multiple answers were allowed for self-care, the specific details of self-care were compared quantitatively for the procedures and the numbers for self-care were compared using the chi-square test. SEIQoL-DW was compared using the t-test. Statistic analysis was performed with SPSS 17J for Windows and a p-value of less than 5% was considered to be statistically significant.

4. Ethical considerations

Consent to cooperate in this study was obtained from subjects, who were informed of the purpose of the study, methods, respect for free will, guarantee of anonymity, and publication of study results, both orally and written. This

study was performed with the approval of the ethics committee of the Hirosaki University Graduate School of Medicine. Approval of the ethical review board was also obtained from the medical institutions that the subject patients visited.

Results

1. Outline of subjects (Table 1)

The subjects were 62 men and 26 women with a mean age of 62.2 ± 9.3 years. Regarding the procedures, 33 and 55 subjects underwent ISR and LAR, respectively. Location of the tumor¹⁷⁾ of subjects were RbP (17 subjects), Rb (30 subjects), RaRb (18 subjects), and Ra (23 subjects). Location of the tumor with respect to the ISR and LAR procedures were statistically significant. Stage of the tumor¹⁷⁾ were 0 (2 subjects), I (27 subjects), II (24 subjects), IIIa (20 subjects), IIIb (14 subjects), IV (1 subject). Family compositions were living alone (11 subjects), living together with spouse (28 subjects), two-generation family (40 subjects), and three-generation family (9 subjects). Employment statuses were company or public service employed (16 subjects), self-employed (6 subjects), agriculture (5 subjects), medical service (3 subjects), and unemployed including leave of absence (58 subjects).

Table 1 shows the comparison of the basic attributes and SEIQoL-DW with respect to the ISR and LAR procedures. The mean age was 60.8 ± 10.0 years for ISR and 63.1 ± 8.8 years for LAR, showing no significant difference. Family compositions show that 7 ISR subjects (20.6%) and 4 LAR subjects (7.4%) lived alone; 8 ISR subjects (23.5%) and 20 LAR subjects (37.0%) lived with their spouse; 16 ISR subjects (47.1%) and 24 LAR subjects (44.5%) lived as a two-generation family; 3 ISR subjects (8.8%) and 6 LAR subjects (11.1%) lived as a three-generation family. The number of subjects

Table 1 The comparison of the basic attributes and SEIQoL-DW with respect to ISR and LAR

	Total (n=88) n (%)	ISR (n=33) n (%)	LAR (n=55) n (%)	p-value
Gender a)				ns
Male	62 (70.5)	25 (75.8)	37 (67.3)	
Female	8 (29.5)	8 (24.2)	18 (32.7)	
Age (Mean \pm SD) b)	62.2 \pm 9.3	60.8 \pm 10.0	63.1 \pm 8.8	ns
Location of the tumor a)				***
RbP	17 (19.3)	17 (51.5)	0 (0.0)	
Rb	30 (34.1)	16 (48.5)	14 (25.5)	
RaRb	18 (20.5)	0 (0.0)	18 (32.7)	
Ra	23 (26.1)	0 (0.0)	23 (41.8)	
Stage of the tumor a)				ns
0	2 (2.3)	1 (3.0)	1 (1.8)	
I	27 (30.7)	9 (27.3)	18 (32.7)	
II	24 (27.3)	6 (18.2)	18 (32.7)	
IIIa	20 (22.7)	11 (33.3)	9 (16.4)	
IIIb	14 (15.9)	6 (18.2)	8 (14.5)	
IV	1 (1.1)	0 (0.0)	1 (1.8)	
Family constitution a)				ns
Lived alone	11 (12.5)	7 (20.6)	4 (7.4)	
Lived with their spouse	28 (31.8)	8 (23.5)	20 (37.0)	
Lived as a two-generation family	40 (45.5)	16 (47.1)	24 (44.5)	
Lived as a three-generation family	9 (10.2)	3 (8.8)	6 (11.1)	
Working a)				ns
Office worker /public employees	16 (18.2)	4 (12.1)	12 (21.8)	
Self-employed	6 (6.8)	4 (12.1)	2 (3.6)	
Agriculture	5 (5.7)	1 (3.0)	4 (7.3)	
Medical care	3 (3.4)	1 (3.0)	2 (3.6)	
Joblessness and leave of absence from work	58 (65.9)	23 (69.7)	35 (63.6)	
SEIQoL-DW (Mean \pm SD) b)	64.8 \pm 15.0	66.7 \pm 15.3	63.8 \pm 14.8	ns
Minimum	24.5	43.6	24.5	
Maximum	100.0	100.0	89.9	

a) χ^2 -test b) t-test

*** : p<0.001

ns : not significant

Location of the tumor and Stage of the tumor : General Rules for Clinical and Pathological Studies on Cancer of the Colon, Rectum and Anus

living alone was 13% higher for ISR than LAR and subjects living with their spouse were approximately 13% higher for LAR than ISR, without any significant difference.

The SEIQoL-DW index for ISR showed a maximum of 100.0, a minimum of 43.6, and a mean of 66.7 ± 15.3 , while that for LAR showed a maximum of 89.9, a minimum of 24.5, and a mean of 63.8 ± 14.8 . The mean was larger for ISR without any significant difference.

2. Actual condition of dyschezia

The categories and subcategories obtained by content analysis were presented by [] and < >,

respectively. Patients were asked to talk about their current defecation condition as recognized by themselves. The content analysis of the dyschezia extracted the contents as shown in Table 2. Seven categories of [frequent defecation], [irregular number of defecations], [defecation on oral drug administration], [long time to calm down], [frequent nocturnal defecation], [fecal incontinence], and [anal pain] were extracted as dyschezia items. [Frequent defecation] was composed of two subcategories of <not less than 10 times a day on oral administration of an antidiarrheal> and <not less than 10 times a day>. [Irregular number of defecations] was

Table 2 Actual condition of dyschezia

Category	Subcategory	Cord
Frequent defecation	Not less than 10 times a day on oral administration of an antifatulent	Medicine for intestinal disorders is taken, and it goes to defecate 10 to 20 times a day.
		Medicine for intestinal disorders is taken, and it goes to defecate 15 times a day.
	Not less than 10 times a day	It goes 10 times or more a day.
		It goes 10 times at intervals of two and a half hours from two hours.
Irregular number of defecations	Not less than 0 to 10 times a day on oral administration of an antifatulent and Chinese medical preparation	Medicine for intestinal disorders is taken, and it goes to defecate by 0 to 30 day several-time. It is not easy to go out first. It is likely not to go on the next day of the day fully said.
		It goes one-to defecate ten-odd times drinking Herbal medicine in a day. It is few on the next day.
	Not less than 0 to 10 times a day on oral administration of a laxative	It goes about ten times if going out once. It takes a purge because it is not in two days.
		It is not in three days though it takes a purge every day. It goes 10 times when going out.
	Not less than 0 to 10 times a day	There is a service frequency 0 to 10 times a day. It is not occasionally about the second that the collected service goes out.
		It is not 4 to 5, and it will go out in 2-3 minutes when going out once.
	Less than 5 to 10 times a day	It goes to defecate 3 to 7 times a day.
		It goes to defecate 2 to 10 times a day. It goes many times until the gas goes out. There are a lot of service frequencies when water is taken.
Defecation on oral drug administration	Defecation on oral administration of an antifatulent and Chinese medical preparation	It goes to defecate 0 to 10 times a day. It is not occasionally about the second that the collected service goes out.
		It is not 4 to 5, and it will go out in 2-3 minutes when going out once.
	Defecation on oral administration of a laxative	It goes to defecate 3 to 7 times a day.
		It goes to defecate 2 to 10 times a day. It goes many times until the gas goes out. There are a lot of service frequencies when water is taken.
		It goes to defecate 0 to 6 times a day. 2 to 3 doesn't have defecation when there is diarrhea.
		It goes to defecate 4 to 5 times a day after two days.
Long time to calm down	3 to 4 successive defecations once defecation starts	It doesn't go to service if the medicine for intestinal disorders is not drunk. It doesn't go on the fifth. It doesn't go out if six medicines are not taken in a day.
		Chinese medicine and the medicine for intestinal disorders are taken, and defecate 0 to 3 times a day. It might not be in two days.
	30 minutes required for a single defecation	It goes to defecate about seven times a day little by little taking a purge every day. It is not in three days when everything goes out.
		It goes to defecate 2-3 times a day taking the constipation medicine. It doesn't go out if the medicine is not taken.
Frequent nocturnal defecation	Nocturnal defecation	It will go three times in about one hour when going once.
		It continues 4-5 times when beginning to go once.
	30 minutes required for a single defecation	About 30 minutes are in the rest room when going to 1 degree and service.
		It will take 20 to 30 minutes by the time service goes out.
Fecal incontinence	Steady leakage	It goes to be going to defecate 5-6 times at 23:00-3:00.
		It goes to defecate 6-7 times a lot at 23:00-4:00.
	Leakage on diarrhea	A women's napkin is appropriated because it often has toilet accident.
		The paper diaper and the urine removing pad are appropriated because it often has toilet accident. It is not understood to go out. Whenever borrowing the porcelain, the urine removing pads have been exchanged.
	Leakage with gas	The antifatulent is taken, and it has toilet accident at the soft stool.
		It has toilet accident at diarrhea.
	Nocturnal leakage	There is defecation with the gas.
		It is timing that turns on the gas and there is defecation.
Anal pain	Occasional leakage	There is an incontinence of feces in the middle of the night.
		There is an incontinence of feces while it is sleeping.
	Anal pain	Occasionally, there is an incontinence of feces with heavy luggage.
		There is occasionally an incontinence of feces.
Use of hemorrhoid medicine	Anal pain	There is a pain when borrowing the porcelain many times.
		It is also painful in the anus.
	Use of hemorrhoid medicine	The medicine is applied because there is a pain on the anus.
		The boraza ointment is put up because there is a pain on the anus.

Table 3 The comparison of dyschezia of ISR and LAR

Dyschezia item	Specific dyschezia	Total(n=88) n(%)	ISR(n=33) n(%)	LAR(n=55) n(%)	p-value
Frequent defecation	Not less than 10 times a day on oral administration of an antifatulent	6(6.8)	2(6.1)	4(7.3)	ns
	Not less than 10 times a day	3(3.4)	1(3.0)	2(3.6)	
	No problem	79(89.8)	30(90.9)	49(89.1)	
Irregular number of defecations	Not less than 0 to 10 times a day on oral administration of an antifatulent and Chinese medical preparation	2(2.3)	1(3.0)	1(1.8)	*
	Not less than 0 to 10 times a day on oral administration of a laxative	3(3.4)	2(6.1)	1(1.8)	
	Not less than 0 to 10 times a day	7(8.0)	5(14.7)	2(3.6)	
	Less than 5 to 10 times a day	5(5.7)	3(9.1)	2(3.6)	
	Less than 0 to 10 times a day	7(8.0)	4(12.1)	3(5.5)	
	No problem	64(72.2)	18(54.5)	46(83.6)	
Defecation on oral drug administration	Defecation on oral administration of an antifatulent and Chinese medical preparation	6(6.8)	3(9.1)	3(5.5)	ns
	Defecation on oral administration of a laxative	11(12.5)	3(9.1)	8(14.5)	
	No problem	71(80.7)	27(81.8)	44(80.0)	
Long time to calm down	3 to 4 successive defecations once defecation starts	10(11.4)	2(6.1)	8(14.5)	ns
	30 minutes required for a single defecation	4(4.5)	0(0.0)	4(7.3)	
	No problem	74(84.1)	31(94.1)	43(78.2)	
Frequent nocturnal defecation	Nocturnal defecation	11(12.5)	8(24.2)	3(5.5)	*
	No problem	77(87.5)	25(75.8)	52(94.5)	
Fecal incontinence	Steady leakage	19(21.6)	17(51.5)	2(3.6)	**
	Leakage on diarrhea	14(15.9)	5(14.7)	9(16.4)	
	Leakage with gas	3(3.4)	0(0.0)	3(5.5)	
	Nocturnal leakage	4(4.5)	1(3.0)	3(5.5)	
	Occasional leakage	5(5.7)	1(3.0)	4(7.3)	
	No problem	43(48.9)	9(27.3)	34(61.8)	
Anal pain	Anal pain	30(34.1)	14(42.4)	16(29.1)	ns
	Use of hemorrhoid medicine	2(2.3)	2(6.1)	0(0.0)	
	No problem	56(63.6)	17(51.5)	39(70.9)	

 χ^2 -test

*p<0.05

**p<0.01

ns : not significant

composed of five subcategories of <not less than 0 to 10 times a day on oral administration of an antifatulent and Chinese medical preparation>, <not less than 0 to 10 times a day on oral administration of a laxative>, <not less than 0 to 10 times a day>, <less than 5 to 10 times a day>, and <less than 0 to 10 times a day>. [Defecation on oral drug administration] was composed of two subcategories of <defecation on oral administration of an antifatulent and Chinese medical preparation> and <defecation on oral administration of a laxative>. [Long time to calm down] was composed of two subcategories of <3 to 4 successive defecations once defecation

starts> and <30 minutes required for a single defecation>. [Frequent nocturnal defecation] was composed of a subcategory of <nocturnal defecation>. [Fecal incontinence] consisted of five subcategories of <steady leakage>, <leakage on diarrhea>, <leakage with gas>, <nocturnal leakage>, and <occasional leakage>. [Anal pain] was composed of two subcategories of <anal pain> and <use of hemorrhoid medicine>.

The comparison of the recognized dyschezia conditions with respect to the procedures did not show any statistical difference between the procedures for dyschezia of [frequent defecation], [defecation on oral drug administration], [long

time to calm down], and [anal pain], as shown in Table 3. <No problem> in [irregular number of defecations] was 46 subjects (85.2%) for LAR and 18 subjects (52.9%) for ISR, demonstrating a significantly higher proportion for LAR. <Nocturnal defecation> in [frequent nocturnal defecation] was 8 subjects (23.5%) for ISR and 3 subjects (5.6%) for LAR, demonstrating a significantly higher proportion for ISR. <Steady leakage> in [fecal incontinence] was 17 subjects (50.0%) for ISR and 2 subjects (3.7%) for LAR, demonstrating a significantly higher proportion for ISR. <No problem> was 9 subjects (26.9%) for ISR and 34 subjects (63.0%) for LAR, demonstrating a significantly higher proportion for LAR.

3. Actual condition of self-care

The content analysis of the self-care that patients performed for dyschezia extracted 11 categories of [using drugs], [refraining from eating], [taking food willingly], [washing anus], [applying diapers and pads], [massaging], [controlling dietary intake], [controlling defecation], [taking supplements], [performing physical exercise], and [maintaining body temperature], as shown in Table 4.

The self-care performed frequently for ISR was [refraining from eating], followed by [taking food willingly], [using drugs], [applying diapers and pads], and [washing anus]. The self-care performed frequently for LAR was [using drugs], followed by [taking food willingly], [refraining from eating], and [washing anus].

The procedure-specific comparison of the sum of the self-care types performed by each patient revealed that one ISR patient (2.9%) performed 7 types of self-care, another ISR patient (2.9%) performed 6 types, and 4 types of self-care were performed by 6 ISR patients (17.6%) and 4 LAR patients (7.4%), as shown in Table 5. The comparison of the number of self-care procedures indicated that ISR patients

performed a significantly large number of self-care procedures.

Discussion

1. Actual conditions of dyschezia recognized by rectal cancer patients

Seven categories of [frequent defecation], [irregular number of defecations], [defecation on oral drug administration], [long time to calm down], [frequent nocturnal defecation], [fecal incontinence], and [anal pain] were extracted as the actual conditions of dyschezia.

Five out of the nine subcategories in [frequent defecation], [irregular number of defecations], and [defecation on oral drug administration] concerned the use of drugs such as antiflatulents, Chinese medical preparations, and laxatives. The reasons for such use are believed to be because colorectal transport capacity decreases after rectal cancer surgery and because the transection of the parasympathetic nerve fibers on the left colon results in the inhibition of contractile movement of the left colon distal to the anastomotic site to produce symptoms such as constipation and gradual defecation^{18,19)}. As a result, postoperative ileus may be induced, so the control was performed by oral administration of drugs such as antiflatulents, starting immediately after surgery, for the sake of prevention. Moreover, the characteristic condition of the number of defecations was periodical defecation alternating between one day of frequent defecation and a day of infrequent or no defecation. This is possibly because some patients who discharged soft feces frequently by taking an antiflatulent might have experienced several days without defecation from the next day or produced a day without defecation by forcing feces to be discharged by the laxative. The presence of several days without defecation after such frequent defecation is probably because the surgery-induced decrease in colorectal transport

Table 4 Actual condition of self-care

Category	Subcategory	Cord
Using drugs	Medicine for intestinal disorders/Herbal medicine	The medicine for intestinal disorders is taken and the hardness of service is adjusted. The herbal medicine is taken.
	Laxative	There is no defecation if it doesn't take the laxative. The laxative is taken when there is no defecation on the fourth.
	Binding medicine	Binding medicine
	Hemorrhoid medicine	Hemorrhoid medicine
Refraining from eating	It doesn't eat the oil one.	It doesn't eat so much because it has loose bowels in oil when it eats the one.
	It doesn't eat the painful one.	It doesn't eat because it becomes like diarrhea if it eats a painful thing.
	It doesn't eat the one with a lot of fibers.	It doesn't eat so much because it has loose bowels when it eats the one with a lot of fibers. The thing, mountain herbs or neither mushroom nor the paste made from the arum root with a bad digestion eats.
	It doesn't eat meat and poultry.	It refrains from meat and poultry.
	It doesn't eat the sweet one.	It refrains from a sweet thing.
	It doesn't eat the cold one.	It doesn't eat a cold thing.
	Coffee is not drunk.	It doesn't eat coffee.
	It doesn't eat the hard one.	It eats neither the hard one nor the dried cuttlefish.
	It doesn't drink milk.	Milk is not drunk.
	Sake is not drunk.	Sake is not drunk.
	It doesn't eat the Ramen.	It doesn't eat the Ramea.
Taking food willingly	It eats the seafood.	It eats the seafood.
	It eats the fibrous a lot of one.	The tofu refuse eats. After it began to have eaten the brown rice, constipation was lost.
	It eats beans.	It eats the bean curd and natto.
	It eats the vegetables.	Vegetable-based diet
	It eats the fruit.	The fruit, especially the apple eats without fail.
	It eats the soft food.	It eats the thing with a good soft the one and digestion.
	It eats the yogurt.	It eats the yogurt.
	It eats anything.	It eats anything.
	It eats in the plain.	It eats the plain.
	The carbohydrate is taken.	It eats noodles and bread when there are a lot of diarrhea.
	It often eats the balance.	It eats the vegetable and the fish and it eats meat for in the week the second on in the week the fifth.
Washing anus	It washes it with washlet.	Neatly if it doesn't wash it with Washlet after it defecates.
	The anus is washed in the shower.	It washes in the shower. Service becomes like the tar, and it is not easy to take it from the toilet.
	It wipes it by a hips wipe.	After it defecates, it wipes it by a hips wipe.
Applying diapers and pads	The napkin is appropriated.	The napkin is appropriated because it often has toilet accident.
	The diaper is done.	When sleeping, the diaper is done.
Massaging	Massage of abdomen, waist, and coccyx	The abdomen is pushed when defecating, and it massages it. It beats around of the coccyx, and it massages it by the hand. The waist might be rubbed when going out of service is bad.
	Massage of abdomen	When defecation doesn't go out easily, the abdomen is patted. When lying, the stomach is massaged.
	The abdomen is moved.	When defecating, the stomach waves and is moved.
Controlling dietary intake	It doesn't eat too much.	It eats only during the eighth belly minute. The amount of meal is reduced, and it makes it to rice gruel etc. It eats one cup, divided into three portions.
	Only water	Only moisture was taken in the rest room in the golf course the day before when going golfing.
Controlling defecation	A new defecation custom is formed.	It controlled though it came to want to go to disregarding to defecate in going out in the morning so that defecation might go out at night because it embarrassed it. It borrowed the porcelain at night, and the custom of defecation was formed.
	It borrows the porcelain consciously.	If it puts it out consciously sitting on the rest room, it has toilet accident. It is made to borrow the porcelain even if there is no defecation desire when doing for 1-2 hours eating.
	When going out, the laxative is taken.	When going out somewhere, they are made to have loose bowels on purpose, and time zone without defecation is made. Everything is put out drinking the purgative uneasily at going on a trip.
	It stimulates with washlet.	When service puts out and it doesn't go out, Washlet is done, and the abdomen is massaged.
	It is practiced to close the anus.	After it had left hospital, the practice to close the anus had been originally done for about one month because I had wanted to resume one's work early.
Taking supplements	The supplement is drunk.	Calcium, the vitamin preparation, and the iron preparation of the supplement are drunk. The supplement of the vegetable is taken.
	The nutritional supplement is taken.	Enshuriakitto is taken.
Performing physical exercise	exercise to bowel movement	It moves and intestines work well.
Maintaining body temperature	It keeps it warm in the hot spring.	It says to the hot spring and the body is warmed.

Table 5 The number of self-care of ISR and LAR

The number of self-care	n (%)	ISR n (%)	LAR n (%)	p-value
0	11 (12.5)	3 (9.1)	8 (14.5)	*
1	27 (30.7)	5 (15.2)	22 (40.0)	
2	18 (20.5)	7 (21.2)	11 (20.0)	
3	16 (18.2)	6 (18.2)	10 (18.2)	
4	10 (11.4)	6 (18.2)	4 (7.3)	
5	4 (4.5)	4 (12.1)	0 (0.0)	
6	1 (1.1)	1 (3.0)	0 (0.0)	
7	1 (1.1)	1 (3.0)	0 (0.0)	
χ^2 -test		*p<0.05		

capacity resulted in the requirement of a longer time for fecal accumulation in the colorectum.

[Fecal incontinence] can also be assumed to occur because the transection of parasympathetic nerve fibers on the left colon results in the inhibition of contractile movement of the left colon distal to the anastomotic site and, as a result, the colorectal content stays in the ascending colon and transverse colon to produce symptoms such as constipation and gradual defecation¹⁹⁾. [Anal pain] develops probably because sustained [fecal incontinence] results in the chemical stimulus caused by attached feces and the physical stimulus due to wiping. [Frequent nocturnal defecation] is likely to occur because the surgery-induced decrease in feces storage capacity, inhibition of the contractile movement of the left colon associated with the transection of the parasympathetic nerve, and the reduction of colorectal transport capacity result in gradual defecation to elicit defecation not only when active but also when asleep during the night.

2. Procedure-specific dyschezia and self-care

The proportion of [irregular number of defecations], [frequent nocturnal defecation], and [fecal incontinence], which demonstrated significant difference with respect to procedures, was higher for ISR than LAR, indicating frequent dyschezia in ISR. A part or whole

part of the inner anal sphincter is resected in ISR. The inner anal sphincter is responsible for 60% to 80% of the resting anal canal pressure, and the anus is closed by superposing the force of the outer anal sphincter from the outside. Although the outer anal sphincter is a voluntary muscle, the duration of contraction is limited to one minute.²⁾ Therefore, frequent fecal incontinence is considered attributable to the decreased resting anal pressure after ISR. In fact, some of the ISR patients that were interviewed mentioned leakage of normal feces and spherical feces. The result where periodical defecation was more frequently observed for ISR than LAR is probably because ISR patients, who were affected by reduced colorectal transport capacity and subjected to frequent fecal incontinence, had days without defecation as a result of taking antiflatulents or inducing diarrhea with laxatives and food as part of their self-care.

Although a significant difference was not present in the present study, the following was observed: the number of <defecation on oral administration of a laxative> <3 to 4 successive defecations once defecation starts> <30 minutes required for a single defecation> was larger for LAR than ISR. Given the influence of the inhibition of the contractile movement of the left colon distal to the anastomotic site by the transection of parasympathetic nerve fibers on

the left colon, support for preventing dyschezia such as constipation are needed after LAR. Specifically, it is necessary to instruct patients in regards to life adjustment so that dietary content, water intake, and moderate exercise can be incorporated into their everyday life.

3. Procedure-specific self-care of dyschezia and nursing intervention for QOL improvement

[Fecal incontinence], which was frequent both in ISR and LAR, was managed by local care including usage of paper diapers and urine receiving pads and preparation of extra clothes and nursery wipes when leaving home: this actual condition of dyschezia was consistent with the survey by Tsuji *et al.*²⁰⁾. In addition, if fecal incontinence is accompanied by [anal pain], intestinal lavage should also be considered. On implementation, it is important that physicians confirm whether intestinal lavage can be indicated. Because intestinal lavage is effective not only in the prevention of fecal incontinence but also against severe constipation, the expansion of indication is anticipated. Moreover, the combination of biofeedback therapy and pelvic floor muscular exercise by physical therapists is considered to be an effective means for the control of fecal incontinence²¹⁾.

[Irregular number of defecations], which was frequent in ISR, included many patients who frequently defecated on drug administration, experienced days with frequent and infrequent defecation, and showed inconstant numbers of defecation. Frequent defecation is associated with [anal pain], and the control of defecation and the local care of the anus are required as measures against these problems. To prevent postoperative ileus, therapy using drugs such as antifatulents, Chinese medical preparations, and laxatives takes priority as defecation control, depending on the fecal characteristics. Regarding anal pain, the inflammation is suppressed by therapy using drugs such

as hemorrhoid medicine and maintaining cleanness to promote the healing of erosion. For the purpose of preventing the facilitation of bowel movement, the observation and daily-life instruction of physical influences such as exhaustion by frequent defecation are required as well as instruction on the food content and intake method, the avoidance of cold stimulus, and the relaxation when under psychological stress²²⁾.

The mean index for SEIQoL-DW of both ISR and LAR was at the 60 level. Although this index cannot be considered to be very low, the patient with the lowest ISR index was distressed by constant fecal incontinence and could hardly perform self-care. LAR patients with a low index experienced frequent defecation and took a long time to calm down. These patients performed self-care by reducing their dietary amount and restricting dietary content but were distressed by the defecation frequency, which barely decreased.

On the basis of the above results, intervention that starts with the proposal of self-care that can be performed by individual patients needs to be provided to patients who have a low SEIQoL-DW index and who can hardly facilitate self-care due to severe dyschezia. Regarding the patients who are performing self-care on their own judgment, we infer that admitting and guaranteeing the performance of self-care can facilitate self-care, provided that the performed self-care is not wrong.

Limitations of this study and future perspectives

The limitations of this study include the relatively light physical and psychological burden because the subjects had no sign of relapse and were cooperative in the survey. In the future, the nursing intervention for facilitating the self-care of dyschezia that was obtained in this study needs to be provided practically with the help of physicians and

physical therapists and improvements in the QOL of each patient requires verification.

Conclusion

The actual conditions of dyschezia recognized by patients and their self-care, and SEIQoL-DW as QOL were elucidated in postoperative rectal cancer outpatients. The nursing intervention for improving procedure-specific self-care and QOL for dyschezia was considered. The above results provided the following conclusions.

1. The mean of the SEIQoL-DW index was 66.7 ± 15.3 for ISR and 63.8 ± 14.8 for LAR, showing no significant difference.
2. The dyschezia recognized by patients can be grouped into seven categories: [frequent defecation], [irregular number of defecations], [defecation on oral drug administration], [long time to calm down], [frequent nocturnal defecation], [fecal incontinence], and [anal pain].
3. The comparison of the procedures of ISR and LAR demonstrated that proportions of [irregular number of defecations], [frequent nocturnal defecation], and [fecal incontinence] were significantly higher in ISR than in LAR.
4. The self-care that patients perform for dyschezia can be summarized into 11 categories of [using drugs], [refraining from eating], [taking food willingly], [washing anus], [applying diapers and pads], [massaging], [controlling dietary intake], [controlling defecation], [taking supplements], [performing physical exercise], and [maintaining body temperature].

The above results suggest that the tutorials for defecation control, anal local care, and food content and intake method are important to the nursing intervention for facilitating the procedure-specific self-care of dyschezia.

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